

REMARKS

The Office Action mailed February 25, 2010, which reopens prosecution in view of the Appeal Brief filed on August 20, 2008, has been carefully considered. Applicants acknowledge with appreciation the Examiner's withdrawal of the previous rejections. Within the Office Action Claims 7-11 have been rejected. No claims are amended herein. Applicants reserve the right to further pursue the previously cancelled claims in a continuation and/or divisional application as well as for appeal purposes. Reconsideration in view of the following remarks is respectfully requested.

Rejection under 35 U.S.C. § 103

Claims 7, 10 and 11 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over "QuaSiC Smart-Cut Substrates for SiC High Power Devices" by Letertre et al. (hereinafter "*Letertre*"). This rejection is respectfully traversed.

In determining obviousness, four factual inquiries are analyzed. These are determining the scope and content of the prior art; ascertaining the differences between the prior art and the claims in issue; resolving the level of ordinary skill in the pertinent art; and evaluating evidence of secondary consideration. Graham v. John Deere, 383 U.S. 1 (1966); KSR Int'l Co. v. Teleflex, Inc., No 04-1350 (U.S. Apr. 30, 2007) ("Often, it will be necessary . . . to look into related teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.").

In determining the differences between the prior art and the claims, the question under 35 U.S.C. §103 is not whether the differences themselves would have been obvious, but whether the

claimed invention as a whole would have been obvious. Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530 (Fed. Cir. 1983). Thus, when considering the whole prior art reference in its entirety, portions that would lead away from the claimed invention must be considered. W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540 (Fed. Cir. 1983), See M.P.E.P. 2141.02. Thus, it is improper to combine references where the references teach away from their combination. In re Grasselli, 713 F.2d 731 (Fed. Cir. 1983).

As admitted by the Examiner, *Letertre* does not disclose realizing an epitaxy on an SiCOI substrate comprising a buried silicon oxide layer since in *Letertre*, the SiCOI substrate comprises a WSi_2 layer and not an SiO_2 layer. The Examiner points to *Letertre*'s general mention of oxide layers, however this statement is made in the Introduction and is in reference to prior art techniques, which *Letertre* implies are unsatisfactory and thus seeks to provide a solution. Specifically, on page 151, second paragraph in the Introduction *Letertre* states:

"In the particular case of SiC, previous works have been first focused on the multiple transfer of high quality SiC thin films onto dissimilar substrates, mainly such as silicon and polycrystalline SiC wafers, via oxide layers, for the fabrication and characterization of SiCOI substrates (SiC on Insulator) [4]. We propose one possible material solution ...".

Multiple transfers of thin SiC layers are very expensive because such process involves successive implantations and specific surface treatments. To remedy these drawbacks *Letertre* proposes to use a buried WSi_2 layer instead of a buried SiO_2 layer, to realize the epitaxy.

Moreover, while the Introduction of *Letertre* (p. 151) mentions oxide layers, this is not in the context of epitaxy. Applicants respectfully submit that no one has had the idea to epitaxy onto such a substrate because a man skilled in the art thought, at the time of the

invention, that at a temperature below 1350°C the quality of 6H and 4H polytype epitaxy would be poor and at a temperature above 1400°C the oxide would be degraded (see the present application, page 5, lines 18-25). This is why, to obtain a thick SiC layer according to the prior art, the SiCOI substrates were realized not by epitaxy but by successive transfers of thin SiC layers one above the other.

Consequently, *Letertre* cannot teach or reasonably suggest conducting an SiC epitaxy on an SiCOI substrate comprising a buried SiO₂ layer as required in Applicants claims, since (among other reasons) *Letertre* teaches the contrary.

Thus *Letertre* does not teach or reasonably suggest each and every element of the pending claims. Applicants respectfully submit that a prima facie case of obviousness is not found, and request that this rejection be withdrawn.

Claims 8 and 9 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Letertre* in view of “Fabrication of Low Defect Density 3C-SiC on SiO₂ Structures Using Wafer Bonding Techniques” by Vinod et al. (hereinafter “*Vinod*”). This rejection is respectfully traversed.

As discussed above *Letertre* does not teach or reasonably suggest the pending claims. Applicants respectfully submit that *Vinod* does not cure the defect in *Letertre*. Moreover, even if one were to combine *Letertre* and *Vinod* as the Examiner suggests, one would not arrive at the limitations of the pending claims. For at least these reasons, Applicants respectfully submit that a prima facie case of obviousness is not found, and request that this rejection be withdrawn.


Conclusion

It is believed that this reply places the above-identified patent application into condition for allowance. Early favorable consideration of this reply is earnestly solicited. If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

A three month extension fee accompanies this reply. Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-3557.

Respectfully submitted,


Marja S. Swiatek
Reg. No. 37,244

Dated: August 24, 2010

Customer Number 46188

Nixon Peabody LLP
P.O. Box 60610
Palo Alto, CA 94306
Tel. (650) 320-7700
Fax (650) 320-7701